REMARKS

I. Status of the Claims and the Rejections

The specification was objected to for allegedly failing to provide antecedent basis for the claim recitation of an "actual ambient temperature value." The Abstract was also objected to for including this same claim element. As discussed below, applicants have now amended the claims to recite a "derived ambient temperature value" to eliminate any confusion caused by the use of the word "actual." Applicants have amended the specification and the Abstract to be consistent with these amended claims. Support for these amendments is located in the original specification at least at page 2, lines 11-19. In view of each of these amendments, applicants respectfully submit that the objections to the specification and the Abstract are overcome and should be withdrawn.

Claims 6-12 were rejected for alleged indefiniteness under 35 U.S.C. § 112, second paragraph. Claims 6-12 were also rejected for allegedly failing to comply with the written description requirement under 35 U.S.C. § 112, first paragraph. Both of these rejections were based on the prior recitation of an "actual ambient temperature value" in the claims. To clarify that the temperature value referred to in these claims is averaged or derived from various measured temperature values, applicants have amended the claims to recite a "derived ambient temperature value." Applicants submit that this claim recitation is fully consistent with the specification and thus overcomes any indefiniteness or written description requirement rejections. Applicants respectfully request that the Section 112 rejections of claims 6-12 be withdrawn.

Claim 12 was also rejected for alleged indefiniteness under 35 U.S.C. § 112, second paragraph, based on the recited comparison of individual ambient temperature values with a desired temperature range. Applicants respectfully submit that the comparison operation

of the electronic control unit recited in claim 12 was easily comprehended in view of the specification. However, applicants have amended claim 12 to more clearly recite that the individual ambient temperature values are compared to both an upper threshold value and a lower threshold value rather than to a desired temperature range. These amendments are fully supported in the original specification at page 6, lines 30-35. In view of these amendments, applicants respectfully request that the Section 112, second paragraph rejection of claim 12 be withdrawn.

Substantively, claims 6-12 were rejected for alleged lack of novelty under 35 U.S.C. § 102(b) based on Fischer U.S. Patent No. 5,479,983 ("Fischer"). Applicants respectfully traverse these rejections. However, applicants have amended independent claim 6 to further clarify the subject matter regarded as patentable. Applicants have also amended claims 10-12 (claims 11 and 12 being converted into independent claims) and added new claim 13 in this response. In view of these amendments and the following remarks, applicants respectfully request reconsideration and allowance.

II. Claims 6-12 are Novel

A. The Claims

Independent claim 6 recites a passenger aircraft including a cabin, a plurality of temperature sensors, and an electronic control unit. The cabin is subdivided into a plurality of cabin zones supplied with feed air from respective supply lines. The plurality of temperature sensors is located in at least one of the plurality of cabin zones and is "operable to measure a plurality of individual ambient temperature values for different locations in the at least one cabin zone." The electronic control unit derives a derived ambient temperature value from the plurality of individual ambient temperature values for the at least one zone, and then controls the

temperature of feed air supplied to the at least one cabin zone based on a difference between the derived ambient temperature value and a room temperature target value.

Claims 7-10 depend from independent claim 6 and recite additional features. For example, claim 9 requires that "each of the plurality of temperature sensors are spaced from each other along a lengthwise direction of the at least one cabin zone." Claim 10 recites that the electronic control unit derives the derived ambient temperature value for the at least one cabin zone by averaging at least a portion of the plurality of individual ambient temperature values.

Independent claims 11 and 12 also recite a passenger aircraft including the features recited in claim 6. Additionally, claim 11 recites that the electronic control unit compares each of the plurality of individual temperature values for at least one cabin zone to a predetermined reference value, and then averages only the individual temperature values that comply with a predetermined condition to derive the derived ambient temperature value. Claim 12 further recites that the electronic control unit compares each of the plurality of individual temperature values for at least one cabin zone to both an upper threshold value and a lower threshold value, and then averages only the individual temperature values that are lower than the upper threshold value and higher than the lower threshold value to derive the derived ambient temperature value.

B. The Deficiencies of the Cited Prior Art

Fischer is directed to a multiple zone air conditioning system in an aircraft. As shown in Figure 2, the aircraft 1 includes a plurality of air distribution systems 5-10 including conditioned air ducts 11-16 each associated with a respective air introduction section A1-A6 of the cabin. Air duct temperature sensors 35-40 are located in the air ducts for measuring the temperature of the feed air. The air introduction sections are operable to be configured into three air conditioning zones 2, 3, 4. A single ambient temperature sensor 18, 19, 20 is provided for

each respective temperature zone. The ambient temperature sensors are positioned in the cabin such that, no matter how the air introduction sections are configured to define the three air conditioning zones, a single temperature sensor is located in each of the designated air conditioning zones and provides a temperature value corresponding to a single temperature within the zone. *See* col. 3, lines 14-43. The Office Action states that Fischer discloses every element of claims 6, 11, and 12 because the temperature zones 3 and 4 of Fischer may be arbitrarily combined to broadly read on the "cabin zone" recited in these claims.

Applicants disagree. This conclusion is based on an impermissibly broad interpretation of the independent claims, given the disclosure, and also on an unreasonable extrapolation of Fischer.

First of all, a person skilled in the art would understand that a "cabin zone" in an air conditioning system refers to a portion of an air conditioned space that is uniformly air controlled. In other words, a cabin zone is defined by the area within which the same temperature is maintained by the air conditioner control. In accordance with this understanding, claims 6, 11, and 12 recite that each of the cabin zones is "supplied with feed air from respective supply lines" (emphasis added). Thus, each cabin zone is supplied with temperature-controlled air from one or more supply lines independent from other cabin zones. With this understanding, Fischer is clearly deficient with respect to claims 6, 11, and 12.

In operation, the temperature of each air conditioning zone 2, 3, 4 in Fischer is controlled by corresponding control loop circuits 42, 43, 44, respectively, that include the single ambient temperature sensor 18, 19, 20 of that particular zone. As shown in Figure 3, a summer 18A, 19A, 20A for each control loop circuit 42, 43, 44 combines a reading from the corresponding ambient temperature sensor 18, 19, 20 and an input from a corresponding temperature selector 45, 46, 47. For each control loop circuit 42, 43, 44, the sum is then

delivered to the CPU 41 that controls the particular air distribution systems 5-10 assigned to deliver temperature controlled air into the corresponding air conditioning zone 2, 3, 4. *See* col. 5, lines 11-39. Thus, in Fischer each air conditioning zone 2, 3, 4 receives temperature controlled air based on its own single ambient temperature sensor 18, 19, 20 and its own temperature selector 45, 46, 47.

In contrast, independent claims 6, 11, and 12 require that an electronic control unit derives a derived ambient temperature value for a particular cabin zone from a plurality of individual ambient temperature values measured by a plurality of ambient temperature sensors in the particular cabin zone. In this regard, the derived ambient temperature value is based on more than one individual ambient temperature value. It is clear from Figure 3 of Fischer that any such "derived" temperature value that is determined by the summers 18A, 19A, 20A depends solely on one measured individual ambient temperature value. Thus, Fischer fails to teach or disclose deriving a derived ambient temperature value from a plurality of individual ambient temperature values, as recited by the independent claims.

To further clarify this deficiency, applicants will explain how the supposed interpretation of Fischer used in the Office Action would actually operate. If temperature zones 3 and 4 were considered the same "cabin zone," then that cabin zone would indeed have two temperature sensors 19, 20. However, each of these temperature sensors 19, 20 would deliver temperature measurements to an independent, separate summer 19A or 20A in an independent control loop circuit 43 or 44, as shown in Figure 3. With this arrangement, neither of the control loop circuits 43, 44, nor the CPU 41, would derive a derived ambient temperature value using measurements from both temperature sensors 19, 20. Thus, even with the arbitrarily combined "cabin zones" of Fischer, as proposed in the Office Action, the resulting structure would still remain deficient with respect to the electronic control unit of claims 6, 11, and 12.

The Office Action also states that alternatively, the air duct temperature sensors 35-40 of Fischer could be interpreted as being a plurality of temperature sensors located in the corresponding cabin zone. However, the air duct temperature sensors 35-40 in Fischer do not measure the ambient temperature in the air conditioning zones of the passenger cabin. The temperature of air in the air duct differs from the ambient temperature in the cabin zone, so that the temperature controlled air can adequately heat or cool the cabin zone as required. In Fischer, the measurements from the air duct temperature sensors 35-40 are not used in any portion of the control loop circuits 42, 43, 44 or the CPU 41 to derive or generate an ambient temperature value (and indeed, this would not make logical sense as the measurements taken by the air duct temperature sensors 35-40 are not indicative of the ambient temperature in the cabin zones). Thus, the air duct temperature sensors cannot be the "plurality of temperature sensors" located in the cabin zone as recited in claims 6, 11, and 12. Fischer remains deficient even under this alternative argument of the Office Action.

Additionally, the control components of Fischer cannot compare a derived ambient temperature value with a room temperature target value because the CPU 41 only receives a difference value between the ambient temperature and the temperature setpoint from the summers 18A, 19A, 20A. For example, if the CPU 41 of Fischer receives a 3 degree temperature difference from the first summer 18A, the CPU 41 of Fischer cannot determine: (1) whether the actual temperature is 30 degrees and the temperature setpoint is 27 degrees, (2) whether the actual temperature is 3 degrees and the temperature setpoint is 0 degrees, or (3) whether any other corresponding set of actual temperature and temperature setpoint is present. Thus, the CPU 41 of Fischer fails to compare a derived ambient temperature value with a room temperature target value.

For at least these reasons, claims 6, 11, and 12 are novel over Fischer. Claims 6, 11, and 12 are also unobvious over Fischer. More specifically, Fischer teaches away from providing a plurality of temperature sensors in a single zone. That is, Fischer teaches that a temperature setting should be input using a temperature selector, and that the signal from the temperature selector should be summed with a signal from the temperature sensor, thereby to provide a controller with a value indicative of needed cooling or heating. However, Fischer provides no disclosure as to how a plurality of sensors would even be handled by the system. It is well established that a claimed combination of prior art elements may be non-obvious where the prior art teaches away from the claimed combination." *2010 KSR Guidelines Update*, Federal Register Vol. 75, No. 169, page 53659 (Aug. 20, 2010). Clearly, Fischer teaches away from the claimed combination.

Moreover, in Fischer, even if a plurality of additional sensors were added to a particular zone, then a plurality of temperature selectors would also be needed in the aircraft. And in that case, the desired temperature set point for any selected aircraft zone would need to be input into each of a plurality of temperature selectors. This inputting process would be tedious and repetitive, and there is no objective reason for modifying Fischer to do this.

As a further alternative, a plurality of distinct temperature set points could be input using the plurality of temperature selectors. In this scenario, the controller would effectively divide the aircraft into even more zones, with each zone controlled by the respective temperature set point and the sensed temperature of the temperature sensor. But even in this case, the result would not be a plurality of temperature sensors in any one zone and a controller that derives an ambient temperature for the zone from a plurality of sensed temperature values.

For at least these reasons, claims 6, 11, and 12 are patentable over Fischer. Also, each of claims 7-10 depends from independent claim 6 and recites a unique combination of

features also not disclosed or rendered obvious by Fischer. Claims 7-10 are therefore also allowable. Applicants respectfully request that the rejections of claims 6-12 be withdrawn.

Claim 11 is allowable over Fischer for additional reasons. Claim 11 further recites that the electronic control unit derives the derived ambient temperature value by averaging only those individual ambient temperature values that comply with a predetermined condition with respect to a predetermined reference value. The control elements of Fischer do not compare the ambient temperature measurements from the ambient temperature sensors 18, 19, 20 to a predetermined reference value to determine whether to average those values. More importantly, the readings from the ambient temperature sensors 18, 19, 20 are not averaged under any circumstances. For at least these additional reasons, claim 11 is allowable over Fischer, and the rejection thereof should be withdrawn.

Claim 12 is also allowable over Fischer for additional reasons. Claim 12 further recites that the electronic control unit derives the derived ambient temperature value by averaging only those individual ambient temperature values that are higher than a lower threshold value and lower than an upper threshold value. The control elements of Fischer do not compare the ambient temperature measurements from the ambient temperature sensors 18, 19, 20 to upper and lower threshold values to determine whether to average those values. More importantly, the readings from the ambient temperature sensors 18, 19, 20 are not averaged under any circumstances. For at least these additional reasons, claim 12 is allowable over Fischer, and the rejection thereof should be withdrawn.

III. New Claim 13 is Allowable

Claim 13 depends from independent claim 6 and further recites that the electronic control unit weighs individual ambient temperature values differently with respect to one another

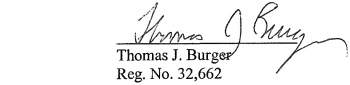
when averaging at least a portion of the plurality of individual ambient temperature values, in order to reduce the effect of temporary temperature fluctuations on the derived ambient temperature value. Claim 13 is allowable for at least the same reasons described above with respect to independent claim 6. Furthermore, Fischer provides absolutely no teaching of weighing different ambient temperature values differently when averaging them together to derive a derived ambient temperature value. For at least this additional reason, claim 13 is allowable over Fischer. Applicants respectfully request that claim 13 be allowed without delay.

IV. Conclusion

Based on the amendments to the claims and these remarks, applicants respectfully assert that all present claims are in condition for allowance, and respectfully request an allowance without further delay.

Applicants believe that no fee is due for this filing. But if the USPTO disagrees, please consider this as an authorization to charge Deposit Account 23-3000.

Respectfully submitted,



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